

- 22 -

ABSTRACT

An amplified laser comprising a semiconductor laser and semiconductor optical amplifier (SOA) mounted on a substrate such that an optical signal generated by the laser is optically coupled to the SOA. The SOA and laser are electrically coupled in a series configuration or a parallel configuration such that a single DC lead is needed to provide operational power and a single lead is needed to provide ground to both optical components. Additionally, a monolithic distributed feedback semiconductor laser (DFB) and SOA device comprising a substrate, a diffraction grating formed on the substrate, an active layer waveguide extending over the substrate and grating, a semiconductor layer formed over the active layer, and an electrical contact layer including varying resistive elements formed on the semiconductor layer. Either device may be contained in an industry standard 7-PIN electro-absorption modulated laser (EML) package.